

**FACT SHEET AND STATEMENT OF BASIS
FOR TENTATIVE DECISION ON PERMIT ACTION**

Permit Type: National Pollutant Discharge Elimination System (NPDES)

Permittee: National Fish and Oyster, Inc.
5028 Meridian Road NE
Olympia, WA 98516-2339

Permitting Authority: Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Permit Writer: Norman K. Schenck, P.E.

The above-named permittee was issued National Pollutant Discharge Elimination System (NPDES) Permit No. WA0038407 in February 1980 for the discharge of pollutants to Hogum Bay (Nisqually Reach, Puget Sound) from the hand-shucking of oysters and clams for commercial purposes. The permit was extended "until further notice" in 1985. At this time the permitting authority has made a tentative decision to renew the permit.

The purpose of this fact sheet is to present the facts on the basis of which the tentative decision was made. The fact sheet is intended to accompany the tentative decision.

Interested persons are invited to comment in writing on this tentative decision. Written comments on the draft permit will be received for 30 days following the day of publication of the notice in the local newspaper, *The Olympian*.

All written comments submitted during the comment period will be retained by the permitting authority and considered in making the final decision on the application for a permit. The permitting authority will provide copies of the application, the tentative decision, and the fact sheet on request. Persons who submit written comments will be notified of the final decision.

The applicant or anyone affected by or interested in the tentative decision may request a public hearing. The request must be filed within the 30-day comment period and must indicate the interest of the party filing such a request and the reasons why a hearing is warranted. The permitting authority will hold a public hearing if it determines there is sufficient public interest.

Please submit written comments to the permitting authority at the above address, to the attention of Industrial Discharge Permit Coordinator.

Permit History

State and federal laws require NPDES permits for the discharge of pollutants to surface waters from point sources. National Fish and Oyster, Inc. was issued NPDES Permit No. WA0038407, effective for five years beginning February 15, 1980, for the discharge of wastewater from the hand-shucking of oysters and clams. This permit was a verbatim reissuance of the first NPDES permit, issued in 1975. The discharge was previously covered by Pollution Control Commission Waste Discharge Permit No. 2696 issued in 1967.

The latest permit's expiration date was February 15, 1985, but a letter dated January 8, 1986, signed by an assistant director of the department, stated that, "...your permit and the terms and conditions thereof remain in effect until further notice." This was based on a solicited declaration from the permittee that there had been no change in the discharge. No further action has been taken on the expired permit. Permit fee assessments have been paid.

The expired/extended permit placed limits only on flow rate, though federal categorical limits on total suspended solids, oil & grease, and pH (and not flow rate) were applicable. There is no basis given for the flow limit. Storm water is not mentioned in the permit and there is no separate storm water permit coverage.

Though the permit has a discharge limit (on flow), no monitoring is required and there is no record that the permitting authority has ever monitored the discharge to assess compliance with this limit.

Nature of the Activity Producing the Discharge

The National Fish & Oyster Company has been operating at this site above the tide flats at the mouth of the Nisqually River since 1939. The company currently processes only Pacific oysters. The maximum production rate is less than 400 gallons (3300 lb.) of oyster meat per day. The average production rate is 300 gallons (2500 lb.) per day. About 80 percent of the oysters are harvested on 300 acres of beds on adjacent tide flats, owned and farmed by the company. The remainder are transported in from other growers. The company also harvests Manilla clams but they are shipped whole. About 20 percent of the Pacific oysters harvested are also shipped as whole live oysters.

Pacific oyster seeding and culture is another activity engaged in at this site, but this is not a "concentrated aquatic animal production facilities," by EPA regulatory definition, and there is no requirement for a NPDES discharge permit for these activities. (It is interesting to note, as an indicator of the pollution impact of this discharge, that the company's oyster seed ground is located near shore, adjacent to the processing plant and the wastewater discharge.)

There is opportunity for stormwater contact with shucked oyster shells piled on the shore. The business is included among the SIC codes defined as "engaging in industrial activity" and byproducts (shells) are exposed to rain. The "pollutants" are not foreign materials, however, and they are returning to the environment from which they came.

Discharge Constituents and Quantities

The shucking and cleaning of the harvested shellfish, along with washdown and sanitation measures, introduces some pollutants to surface waters of the state by way of a discrete, point-source wastewater discharge stream. These include dissolved and suspended organic material from processing the shellfish and residual detergent and chlorine from the sanitation and disinfection measures required by consumer protection health regulations.

The results of analysis for pollutants of concern in one composite sample taken over the course of one typical production day at a similar oyster shucking and packing operation are shown in the following table. (Because the activities are virtually identical, the results of analyses of samples collected by the permitting authority on another discharge are considered to be representative of this discharge. Sampling and analysis ordinarily required with the application was waived by the permitting authority as provided for by the federal regulations.

TABLE 1
DISCHARGE DATA, OLYMPIA OYSTER CO., OCTOBER 22, 1996

ANALYTE	RESULTS	UNIT
Biochemical Oxygen Demand	800	mg/L
Total Suspended Solids	271	mg/L
Chlorine	0.2	mg/L
Fecal Coliform	1.8	#/100ml
Oil and Grease	16	mg/L
Ammonia (NH ₃)	1.179	mg/L
Nitrite-Nitrate	0.542	mg/L
Total Kjeldahl Nitrogen	116	mg/L

It is estimated that the flow rate at these concentrations is less than 5000 gallons per day.

The Receiving Water

Puget Sound at the point of discharge is specifically designated as a "Class AA (extraordinary)" marine water body for the purposes of the application of state water quality standards. These standards are intended to "markedly and uniformly exceed the requirements for all or substantially all characteristic and designated uses" of these water bodies. Characteristic and designated uses for Class AA waters include: salmonid and other fish migration, salmonid and other fish and shellfish rearing, spawning and harvesting, wildlife habitat, primary contact recreation, sport fishing, boating and aesthetic enjoyment, commerce and navigation. Distinctive narrative and numerical water quality criteria for this class are set out at WAC 173-201A-030(2)(c).

NPDES Permit Requirements Applicable to this Discharge

The Clean Water Act makes the discharge of any pollutant unlawful without a permit so authorizing (Section 301a). EPA or a delegated state permitting authority may issue a permit to discharge pollutants (Section 402) upon condition that the discharge meets certain requirements. The permit must assure: (1) that the discharge meets any applicable and appropriate technology-based requirements (these can be numerical limitations based on demonstrated capability of available technology applications or "best

management practices” to prevent and control discharges of pollutants), and (2) that it does not in any case cause or contribute to violations of the applicable receiving water standards.

Technology Based Considerations

The permitting authority has determined that this is a discharge of pollutants subject to NPDES permitting requirements and that categorical technology-based limits are applicable. On the basis of the representative sampling performed by the permitting authority on the similar discharge (Table 1), it is expected that this discharge can meet the applicable categorical effluent limits with simple good housekeeping and source control measures (as was anticipated in the development of the limits). The following evaluation of the similar discharge is offered to demonstrate this prediction.

The maximum applicable categorical effluent limit for suspended solids discharge for any one day is 47 lb./1000 lb product. Production on the day of sampling was approximately 1350 lb. The categorical limit for that day was therefore $1.35 \times 47 = 63$ lb. The actual discharge of suspended solids on the day of sampling was 8 lb, as calculated by multiplying the concentration of the composite sample from that day times the maximum estimated flow (1200 gallons). Similarly, the production-based limit for “Oil & Grease” on that day was $1.35 \times 2.4 \text{ lb}/1000 \text{ lb} = 3.2$ lb. The actual discharge of “Oil & Grease” was $(16)(1200)(8.33)/1,000,000 = 0.2$ lb.

Water Quality Based Considerations

Without dilution, the discharge (based on the sample analysis shown in Table 1) has the potential to cause or contribute to exceedence of water quality criteria for dissolved oxygen, chlorine, and turbidity. A “mixing zone” in which the criteria may be exceeded and where dilution may occur, up to 200 feet in diameter, is allottable. To accurately assess whether or not these criteria would ever be exceeded at any point beyond this distance from this non-submerged, near-bank discharge in a tidally active zone is a daunting task no matter what method might be used (mathematical modeling, analogous modeling, or actual field measurement). This is especially so for dissolved oxygen depletion (which is probably the most significant potential impact of this discharge). It is more practical useful perhaps to roughly assess the degree of potential oxygen impacts by considering simplifying, conservative assumptions and extreme conditions.

The strictest oxygen criterion for this receiving water is that the dissolved oxygen concentration may not be depressed by more than 0.2 mg/L by “human activities.” In the case of dissolved oxygen, the discharge has a measured 5-day biochemical oxygen demand of 800 mg/L. But the 5-day BOD is just a relative measure of oxygen demand and demand rate as determined under specific laboratory conditions; the actual demand and rate will depend on the situation. If we make the conservative assumption that the water within the zone of allowable exceedence will change twice daily (with tidal flux), within the zone the relevant BOD is the 1/2-day BOD which could be approximately estimated to be 20 percent of the 5-day BOD. Furthermore, the lab-measured BOD reflects a temperature of 20° C, whereas the receiving water temperature is 10 degrees cooler. Since biochemical reaction rates decrease by 50 percent for each 10 degrees, the actual BOD could be further diminished by 1/2. The BOD within the zone would be thus reduced to $800(.2)(.5) = 80$ mg/L. For each liter (or gallon) of discharge, approximately $80/0.2 = 400$ liters (or gallons) of receiving water would have to mix with it to meet the criterion. The maximum discharge is 5000 gallons per day (over a less-than 12-hour period), so mixing with $400 \times 5000 = 2,000,000$ gallons is needed. The amount of receiving water available within the allottable mixing zone at an average depth of four feet is $\pi (200)^2(4)(8.33)/2 = 2,100,000$ gallons.

This oversimplified assessment shows sufficient dilution. The assessment is conservative in that it does not consider reaeration or receiving water flux through the mixing zone between tidal flushes. On the other hand, it assumes that the discharge mixes equally with all the available water within the zone before leaving the zone. Also, the assessment does not account for the long-term exertion of the oxygen demand after it leaves the mixing zone and the resulting far-field (and far-time) impacts; it is assumed that the physical reaeration and dispersion rates as the plume dissipates into the far field will exceed the rate of depletion due to biochemical demand.

It should be considered, too, that the very stringent oxygen depletion criterion (0.2 mg/L) is not toxicity-based, but arbitrary, making the imposed application of it to the aquatic life chronic toxicity mixing zone rationally weak. This criterion was carried over from previous versions of the water quality standards in which it applied apparently to the whole receiving water body. If this was the original intent of the criterion, the current application of it would seem extremely, and perhaps unreasonably, conservative.

The permitting authority, on the basis of these considerations, predicts no interference by this discharge with the characteristic uses of the receiving water due to dissolved oxygen depletion.

Chlorine fate is also impractical to model accurately for the reasons mentioned above and also because it is reactive. However, again, a rough approximation is possible. A reduction of 0.2 mg/L (the discharge concentration) / 0.0075 mg/L (the chronic aquatic toxicity criterion) = 27 times is required within the mixing zone. The available dilution, alone, is $2,100,000 / 5000 = 420$ times (assuming complete mixing). The reactivity of chlorine would tend to further diminish its concentration at the boundary of the dilution zone. On this basis, the permitting authority has determined that there is no reasonable potential for this discharge to cause or contribute to exceedences of the receiving water quality criteria for chlorine.

Turbidity impact (caused by the suspended solids in the discharge) is also impractical to model. Turbidity criteria apply outside the same mixing zone allowed for chronic toxicity criteria exceedence (200 feet maximum radius). Observation on the day of sampling demonstrated that visually distinguishable turbidity dissipated within a few feet of the discharge point. On this basis, the permitting authority has determined that there is no reasonable potential for this discharge to cause or contribute to exceedences of the receiving water quality criteria for turbidity.

No water quality based limits are imposed on the discharge stream. Flow rate (limited in the current permit) is not a pollutant and therefore should not be limited. The draft permit has no flow limit.

Tentative Decision

In respect of the above considerations, i.e., that the applicable categorical effluent limits can be met and that the discharge would not have a reasonable potential to cause or contribute to violations of receiving water quality standards, the permitting authority has made a tentative decision to issue a NPDES permit for the discharge. A copy of the draft permit accompanies this fact sheet.

Basis for Effluent Limitations in the Draft Permit

The limits placed in the draft permit on total suspended solids, oil & grease, and pH are the categorical effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available for the Pacific Coast hand-shucked oyster category (40 CFR Part 408, Subpart Y).

Basis for Monitoring Requirements in the Draft Permit

Monitoring of the wastestream flow, suspended solids, oil & grease and pH is required in the draft permit to assess compliance with permit limits. Flow monitoring is necessary in order to calculate mass discharge of the limited pollutants. Production monitoring is necessary to calculate compliance with the categorical production-based limits.

The monitoring points, frequencies, and methods prescribed in the testing schedule are as deemed needed to provide representative monitoring to establish compliance with permit limits (regulatory basis: 40 CFR 122.41(j) and 122.48 (b) and WAC 173-220-210).

Basis for Other Special Conditions in the Draft Permit

Special Condition S2. Monitoring, Recording and Reporting Requirements:

The obligation for the permitting authority to impose these requirements in permits is stipulated in 40 CFR 122.41, "conditions applicable to all permits" and WAC 173-220-210.

Basis for Standard Conditions in the Draft Permit

The general conditions include standard conditions which are applicable to all NPDES permits per the Code of Federal Regulations (CFR) and the Washington Administrative Code (WAC). These permit requirements are, for the most part, contained in 40 CFR 122.41 and WAC 173-220-150. Others stem from 40 CFR paragraphs 122.21, 122.22, 122.42, 122.43, 122.44, 122.62, 122.63 and 122.64 and WAC 173-220 sections -120, 180, 190 and 200